

Innovative earthquake monitoring trials underway in New Zealand

NZ's GNS Science Te Pū Ao investigating FiberSense DigitalSeismic™ services on Vodafone NZ's fibre cables to better understand seismic activity across Wellington.

Sydney, Australia, 16 August 2023 - Infrastructure sensing and monitoring company, Fiber Sense Limited ("FiberSense") announced today it has partnered with New Zealand's geoscience authority GNS Science, Te Pū Ao (GNS) to evaluate FiberSense's world leading sensing solution to monitor and detect seismic activity in and around Wellington City.

The 12-month commercial pilot will provide GNS scientists with access to the unique FiberSense DigitalSeismic™ datastream. GNS, through its GeoNet programme, will work with FiberSense technical experts on the data collection and processing tools to assess the DigitalSeismic™ technology. The focus of the project will be a fibre optic loop from Vodafone's (One) network in the Wellington region which will be used to detect previously undersampled seismic events and other sources of ground vibration. The workplan includes an evaluation of ground motion (peak ground acceleration) at the street and building address level along the route.

Dr Nate Lindsey, VP Science and Innovation at FiberSense, explained: "DigitalSeismic™ is a game changer as it transforms the existing inground fibre optic cables that ring the Wellington CBD into thousands of seismic sensors."

"Researchers and public safety authorities currently rely on information from networks of strong motion seismometers and GPS instruments to provide information about an earthquake's size, source location, and the resulting shaking in an area. DigitalSeismic™, however, detects the seismic waves as they cross the cables, mapping earthquake waves in greater detail. In turn, this delivers sensitive data on the level of impact of the event on a building-by-building basis. We believe this is both a world first and the world's best technology for these important applications." Dr Lindsey said.

"We are thrilled to be collaborating with GNS – an organisation at the global forefront of research into all aspects of seismic activity and especially delighted that they will collaborate on the Wellington deployment of DigitalSeismic™." Dr Lindsey continued.

Dr Richard Kellett (project manager at GNS) said "The type of technology offered by FiberSense has been evolving rapidly over the last five years and it is part of our long-term plan to undertake an evaluation of distributed fibre optic sensing. The opportunity to partner with FiberSense on this pilot project across the Wellington area has come at the right time for our team. We are excited to work alongside their technical experts and appraise the level of detail, speed of data processing, and delivery of geohazard information."

Fibre optic monitoring and diagnostic technologies have traditionally been used to monitor the performance of infrastructure including powerlines, pipelines, railways, and roads. Fibre optic sensors are capable of detecting immediate threats to the assets such as excessive vibration, excavations, and rock fall. Utilising the fibre to sense subtle ground motions that indicate geological or man-made activity at greater distances from the cable is the next step in the evolution of the technology. Understanding the environment around the buried cable provides additional insight into better managing and

preparing for disruptive natural events. For FiberSense, the trial marks another step in deployment in Asia Pacific and adds to the partnership it has established with Vodafone NZ (One).

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ABOUT FIBER SENSE www.fibersense.com

Fiber Sense Ltd ("FiberSense") was formed to dramatically improve everyone's experience in public spaces by adding a new level of real time and historical awareness of anonymised objects and events in public spaces. The team at FiberSense invented and patented a new class of sensor system over optical fiber cable infrastructure called Vibration Detection and Ranging. FiberSense technology sits at the intersection of optical fiber sensing, integrated photonics, artificial intelligence, and optical fiber telecoms networks. They bring these capabilities together in a digital platform that can be sampled at www.fibersense.com

ABOUT GNS Science www.gns.org.nz

GNS Science , Te Pū Ao (GNS) is the primary provider of geoscience data for New Zealand. Our purpose is to undertake research that enhances our understanding of geological and Earth system processes and increases Aotearoa New Zealand's resilience to natural hazards and climate change. We aim to drive innovation and growth that ensure risk, the environment and our natural resources are sustainably managed for a cleaner, safer, more prosperous future. GNS was established under the NZ Crown Research Institutes Act 1992 with a heritage dating back to the foundation of the New Zealand Geological Survey in 1865. Within GNS, GeoNet is a programme that provides New Zealanders with high quality open data for research and monitoring on earthquakes, tsunamis, volcanic activity and landslides. GeoNet is operated in partnership with Toka Tū Ake EQC, Toitū Te Whenua Land Information New Zealand.

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